

Further, it is respectfully submitted that the restriction requirement is subject to the nonallowance of the linking claims.

Objection to Claim 99

Claim 99 was objected to as being in improper form. It is respectfully submitted that the objection is moot in light of the amendment to Claim 99.

Objection to the Specification; and Rejections under 35 USC § 112, First Paragraph

The specification was objected to as not disclosing pre-programmed data patterns. This objection is respectfully traversed. Also, Claims 50-73, 99, 100, 104, and 107 were rejected under 35 U.S.C. §112, first paragraph, as including subject matter (pre-programmed data patterns) that is not enabled by the disclosure. This rejection is respectfully traversed.

It is respectfully submitted that pre-programmed data patterns are disclosed and enabled by the specification as filed. For example, in paragraph [028] line 8 through paragraph [029] line 2, the specification states that “a single generator 10 may be implemented and the lookup tables 42 may be utilized to supply of the generator 10 with information required to generate a full data sequence for multiple test patterns. At block 64, the sample test pattern (or sequence) is analyzed to generate an algorithm that minimizes the data storage or generation logic.” Paragraph [033] states that, “At block 66, values are stored in the lookup tables 42 for points in the data pattern or sequence where it is not possible to algorithmically generate data, with an appropriate lookup or an index, so as to enable recall of such values for regeneration of a test pattern.” Although the exact phrase “pre-programmed data pattern” is not used in the specification, the data generation and generation logic generated at block 46, and the values stored in lookup table 42 for points where it is not possible to algorithmically generate data, act collectively as pre-programming for generation of a data pattern. The exact terminology used in a claim need not have antecedent basis in the specification, see MPEP 2173.05(e). Paragraphs [034] through [042] describe an embodiment of generation of a data pattern based on the pre-programming.

Rejections under 35 USC § 112, second paragraph

Claim 50 was objected to as containing contradictions. Applicant respectfully disagrees, but respectfully submits that the rejection is rendered moot by the amendment to Claim 50. Claim 50 was amended for further clarity. More specifically, Applicants made unnecessary, cosmetic changes in lines 2-4 of Claim 50 as amended to further clarify that the data pattern selected need not exist yet. Claim 50 at line two refers to selecting a data pattern to be created. This does not imply that the selected data pattern exists already; rather, a data pattern **to be created** is selected. Even though the selected data pattern does not necessarily exist already, pre-programming for creating the data pattern does exist in memory; it is not unusual to refer to the properties of an object which is programmed for creation in memory, even though that object may not yet have been created.

The term “in part” in Claim 57 clarifies that algorithmic pattern generation need not be performed by the state machine alone. Rather, the scope of Claim 57, with the use of the term “in part”, clarifies that the algorithmic pattern generation may be performed by components acting in cooperation, with the state machine being one of those components. There is nothing indefinite about this. The use of the term “in part” in Claim 57 is analogous in some ways to the use of the word “comprising” as a transition word in a claim instead of the phrase “consisting of”. If a claim uses the words “consisting of” as a transition phrase, the claim elements include only those claim elements listed, and exclude any elements not specifically listed in the claim. However, if the claim uses the word “comprising” as a transition phase, the scope of the claim includes embodiments of the invention which contain components other than those specifically listed in the claim. It is well-established that use of the transition phrase “comprising” does not render a claim indefinite. Similarly, the use of the phrase “in part” does not render Claim 57 indefinite. If claim 57 omitted the phrase “in part”, Applicants risk the possibility that the claim would be interpreted to mean that algorithmic pattern generation must be accomplished solely by the state machine, which is not the intended meaning of the claim. By using the phrase “in part”, Applicants clarify that the scope of

the claim also covers embodiments in which components other than the state machine are involved in the algorithmic pattern generation. Just as the use of the phrase “comprising” does not render a claim indefinite, the use of the phrase “in part” in Claim 57 does not render Claim 57 indefinite.

It is respectfully submitted that the rejection to Claims 57 and the rejection to Claim 60 under 35 U.S.C. § 112, second paragraph should be withdrawn for at least the reasons stated above, and notice to that effect is respectfully requested.

Claim 100 was rejected as having insufficient antecedent basis. It is respectfully submitted that the rejection is rendered moot by the amendment to Claim 100, and notice to that effect is respectfully requested.

Claim 100 was also rejected to as being indefinite because the “selected test pattern” and the “created selected test pattern” are both referred to as “the selected test pattern.” The Office Action further states, “If regenerating is different from creating the regenerated “selected test pattern” should not be the same as the created “selected test pattern.” Applicants respectfully submit that this rejection is rendered moot by the amendment to Claim 100. “Creating” and “regenerating” are nearly identical terms, the difference being that (based on the prefix “re”) “regenerating” means “creating **again**”, i.e., a creation that is not original. In Claim 100, the word “regenerated” is used in place of the word “created” for increased clarity, to differentiate between (1) the original data pattern that was used to pre-program the data pattern for later generation, and (2) the “regenerated” data pattern that is subsequently created based on the pre-programming. The limitation “wherein creating the selected test pattern includes regenerating the selected test pattern such that the created data pattern is a regenerated selected test pattern” in Claim 100 as amended (an unnecessary, cosmetic amendment) is used to clarify that the term “created” is limited to the slightly narrower term “regenerated” (narrower in that if it is regenerated, it is being **re**-created, as opposed to an original creation), and also clarifies that the word “regenerated” will be used interchangeably with the word “created” throughout Claim 100.

Claim 104 was rejected as having insufficient antecedent basis. It is respectfully submitted that the rejection is rendered moot by the amendment to Claim 104, and notice to that effect is respectfully requested.

Claims 50-73, 99, 100, 104, and 107 were rejected under 35 U.S.C. § 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connection. The rejection is respectfully traversed.

This rejection is respectfully submitted to be improper for several reasons.

First, the rejection is improper on the grounds that it is directed towards a method claim rather than an apparatus claim. An apparatus claim might be improper if it merely listed a kit of parts without describing any structural or functional relationships between those parts. However, a method claim is not necessarily indefinite for failing to specify an exact structural connection between two or more components that acts of the method act upon. Indeed, in some cases there may be several ways that such components could be connected, and there is no reason for the claim to limit itself to one such embodiment. Rather, if structural connections between structural components that the method acts upon are not specified, the claim covers each of the possible structural connections. If the claim does not describe a particular connection, that does not make the claim indefinite; rather, it is clear that the claim is not limited to one particular structural connection employed where more than one type of structural connection is possible. Claim breadth is not indefiniteness, see MPEP 2713.04.

Second, the rejection is improper because nothing “essential” has been omitted from the claims. The section of the MPEP referred to in this section (MPEP 2172.01) deals with “essential elements of the invention as defined by applicant(s)”. Further, MPEP 2172 states that “A rejection based on the failure to satisfy this requirement only where the applicant has stated, somewhere other than the application as filed, that the invention is something different from what is defined in the claims.” Applicants have not stated, in the application or elsewhere, that there are any **necessary** structural connections omitted in the claims.

Further, Claim 50 was rejected as being indefinite for omitting a structural relationship between “the plurality of portions”, the created portion and the stored “plurality of portions.” It is respectfully submitted that the claim is definite with regard to these relationships. The selected data pattern includes a plurality of portions. At least one of those portion(s) is created by performing a pre-programmed algorithm. At least one other of those portion(s) is stored based on the pre-

programming, and this/these stored portion(s) are retrieved when the selected data pattern is created. These relationships are clearly described in Claim 50.

Claim 57 was rejected as omitting necessary structural connections between “the algorithmic pattern generation” and “a state machine”, and between “the algorithmic pattern generation” and “a plurality of tables”. It is respectfully submitted that this rejection is improper, because it is nonsensical to have a structural connection between a process (algorithmic pattern generation) and a thing (a state machine or a plurality of tables).

Claim 61 was rejected as omitting a necessary structural cooperative relationship. It is respectfully submitted that this rejection is rendered moot by the amendment to Claim 61.

Claim 100 was rejected as omitting structural cooperative relationships between “the set of at least one data pattern” and “the plurality of component video patterns.” The Office Action further states, “Note that the relationship between ‘the set of at least one data pattern’ and ‘the plurality of components video patterns’ is indefinite because it is not clear which of the at least one data pattern includes the plurality of component video patterns and how many of the component video patterns each data pattern includes.” This last sentence seems to be based on a misinterpretation of the claim. The claim states that the **set** includes the plurality of component video patterns, not that **elements of the set** include the plurality of component video patterns. The set is a set of data patterns. The limitation “the set of at least one data pattern includes the plurality of component video patterns” species that each component video pattern in the plurality of component video patterns is a data pattern that is a member of the set. In other words, it specifies that the plurality of component video patterns is a subset of the set of at least one data pattern. The claim covers an embodiment in which the set is the plurality of components video patterns. Also, since “includes” is open-ended, the claims also covers embodiments in which the set further includes other data patterns. If the claim had meant that a data pattern in the set includes the plurality of component video patterns, the claim would have stated something along the lines of “a data pattern in the set of at least one data pattern includes the plurality of component video patterns”. Instead, the claim specifies that the set includes the plurality of component video patterns. It is respectfully submitted that Claim 100 is not indefinite.

The Office Action further asserts that Claims 50-73, 99, 100, 104, and 107 are replete with additional problems under 35 U.S.C. § 112 that require correction. As far as Applicants can tell, these supposed problems primarily stem from the Office's misinterpretation that "the selected data pattern" must already exist, when the act of selecting refers to selecting the data pattern **to be created**, as discussed above with regard to Claim 50. Applicants respectfully submit that Claims 50-73, 99, 100, 104, and 107 particularly point out and distinctly claim the subject matter which Applicants regard as the invention.

Rejection under 35 U.S.C. § 101

Claims 50-73, 99, 100, 104, and 107 were rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter. It is respectfully submitted that this rejection is rendered moot by the amendment to Claim 50.

Rejections under 35 U.S.C. § 102

Claims 50, 52, 54-64, and 66-73 were rejected under 35 U.S.C. § 102 as being anticipated by Wilensky (US 4513318 A). Applicants respectfully traverse the rejection.

Wilensky describes a video test pattern generator for generating video test patterns, such as video test patterns a-l as illustrated in FIG. 1 of Wilensky, as well as generating similar test patterns not shown, since the video test pattern generator of Wilensky is programmable. See column 6, lines 40-46 of Wilensky. In Wilensky, rather than using pre-programmed video test patterns, the video test patterns are programmed on the fly. When a technician wishes to generate a test pattern, the technician issues a high-level statement, and then chooses an x,y location for the first character. See column 9, lines 13-16 of Wilensky. The video test pattern generator of Wilensky generates the video test pattern based on this on-the-fly programming. The use of programming to create the video test patterns shown in FIG. 1 Wilensky allows the patterns' attributes to be changed as necessary for a particular test. See column 9, lines 61-63 of Wilensky.

In contrast, Applicants' Claim 50 recites "selecting a data pattern to be created from a set of at least one pre-programmed data pattern".

In Wilensky, a video test pattern (e.g. video test pattern a-l of FIG. 1, or variation thereof) is generated by issuing a high level statement, and generating the video test pattern based on this

statement. The video test pattern of Wilensky is not pre-programmed. In contrast, Applicants' Claim 50 recites "selected a data pattern to be created from a set of at least one pre-programmed data pattern" and "creating the selected data pattern".

The Office Action states "col. 9, lines 15-16 in Wilensky teaches selecting character from a set of at least one pre-programmed characters preprogrammed and stored in character memory 87 in Figure 4; col. 8, lines 62-65 in Wilensky teaches that each character is a portion of a test pattern, hence Wilensky teaches selecting a data pattern from a set of at least one pre-programmed character data pattern." Applicants are not entirely clear as to what the Office Action is asserting in the section quoted. The Office Action does not appear to assert that a **single character** of Wilensky is the selected data pattern, because the Office Action also states, later in the same rejection, "Figure 5 of Wilensky is an algorithm for creating a data pattern whereby for each of the plurality of character portions of the selected data pattern...." So the Office Action is not regarding the single character as a selected data pattern. But the Office Action only states that a **single character** of Wilensky is pre-programmed and stored in memory. Applicants' Claim 50 specifies that the **data pattern** is pre-programmed, not that a mere portion of the data pattern is pre-programmed. In contrast, Wilensky discusses that the data pattern is programmed by issuing a high-level statement, as opposed to the entire data pattern already being pre-programmed in memory.

For at least the reasons stated above, it is respectfully submitted that the rejection to Claim 50 under 35 U.S.C. § 102 should be withdrawn, and notice to that effect is respectfully requested. Additionally, since Claims 52, 54-64, and 66-73 each depend on Claim 50, it is respectfully submitted that the rejection to Claims 52, 54-64, and 66-73 under 35 U.S.C. § 102 be withdrawn.

Also, it is respectfully submitted that the rejection to Claim 55 under 35 U.S.C. § 102 should be withdrawn at least because Wilensky does not disclose "filtering an output of at least one of the state machine and the look-up table", as recited in Applicants' Claim 55. Additionally, it is respectfully submitted that the rejection to Claim 56 under 35 U.S.C. § 102 should be withdrawn at least because Wilensky does not disclose "dithering an output of at least one of the state machine and the look-up table", as recited in Applicants' Claim 56.

Further, it is respectfully submitted that the rejection to Claim 58 under 35 U.S.C. § 102 should be withdrawn at least because Wilensky does not disclose "providing a table output signal from the plurality of tables based on the plurality of clear and increment signals and **the pattern**

select signal” (emphasis added) as recited in Applicants’ Claim 58. First, it is respectfully submitted that Wilensky does not disclose a pattern select signal. The Office Action states that “the shift register in Figure 4 in Wilensky selects data patterns.” Assuming for the sake of argument that the input clock to the shift register of Wilensky is a pattern select signal, note that the input clock to the shift register does not affect the output signal provided by character memory 87.

Also, it is respectfully submitted that the rejection to Claim 59 under 35 U.S.C. § 102 should be withdrawn at least because Wilensky does not disclose “selecting the data pattern is accomplished by providing a pattern select signal to a register”, as recited in Applicants’ Claim 59. The Office Action states that “The shift register in Figure 4 in Wilensky selects data patterns.” It is respectfully submitted that the shift register in Figure 4 of Wilensky does not perform a selection function.

Additionally, it is respectfully submitted that the rejection to Claim 60 under 35 U.S.C. § 102 should be withdrawn at least because Wilensky does not disclose “decoding an output of the register to identify the selected data pattern”, as recited in Applicants’ Claim 60, and does not disclose “providing a plurality of signals based on the pattern select signal to a state machine”, as recited in Applicants’ Claim 60. First, as previously stated, the shift register of Wilensky does not perform a selection, nor is the input clock to the shift register a pattern selection signal. Further, the output signal of the shift register of Wilensky is not decoded to identify a selected data pattern.

Also, it is respectfully submitted that the rejection to Claim 62 under 35 U.S.C. § 102 should be withdrawn at least because Wilensky does not disclose “the set of at least one pre-programmed data pattern includes sixteen component video patterns”, as recited in Applicants’ Claim 62. Wilensky discloses generating a video test pattern by issuing a high level statement so that the video test pattern generated is programmable, rather than being pre-stored in memory. Wilensky does NOT disclose pre-programming video patterns. Rather, Wilensky describes a processing of creating video patterns by programming them on the fly, by issuing a high-level statement when the technician wants to generate a test pattern. Also, Wilensky discusses generation of composite video patterns, not component video patterns. In contrast, Applicants’ Claim 62 recites that “the set of at least one pre-programmed data pattern includes sixteen component video patterns”.

Also, it is respectfully submitted that the rejection to Claim 71 under 35 U.S.C. § 102 should be withdrawn at least because Wilensky does not disclose “configuring the memory component is

comparing the at least one BIST checksum with the at least one stored checksum for the created data pattern”.

In order for the test pattern generator of Wilensky to compare a checksum to a pre-computed checksum, the video test pattern would have to have been already included in memory so that it would be pre-computed. However, the test pattern generator of Wilensky is designed to program data patterns on-the-fly by issuing a high-level statement. Since the video test pattern is unknown until the high-level statement is issued, there is no way to pre-compute the checksum in Wilensky. If Wilensky were modified for “determining and storing at least one checksum for each of the at least one pre-programmed data pattern”, the principles of Wilensky would be changed. The video test pattern generator of Wilensky could not be simultaneously be programmable and pre-compute the checksums. However, programmability of the video test patterns is a fundamental principle of operation of Wilensky. Further, since Wilensky teaches a programmable video test signal generator, it teaches away Applicants’ Claim 51.

New Claims 119-120

New Claims 119 and 120 are submitted to be allowable at least because they depend on Claim 50, which is proposed to be allowable.

Additionally, Claim 119 is proposed to be allowable at least because Wilensky does not disclose, “selecting a data pattern to be created from a set of at least one pre-programmed data pattern”, (as recited in Applicants’ Claim 50) wherein “each data pattern of the set of at least one pre-programmed data pattern is a complete video test pattern” (as recited in Applicants’ Claim 119). Wilensky describes that a character block may be stored in memory, and used as part of a test pattern if it meets the requirements of an issued high-level statement. See column 8, line 57 through column 9, line 31 of Wilensky. However, the character block of Wilensky is not a complete video test pattern. In Wilensky, a complete video test pattern is not pre-programmed. Rather, in Wilensky, a test-pattern is programmed on the fly by issuing a high-level statement and an x,y location. In contrast, Claim 119 recites “each data pattern of the set of at least one pre-programmed data pattern is a complete video test pattern”.

Further, Claim 120 is proposed to be allowable at least because Wilensky does not disclose “a forty-bit data sample including a unique 10-bit data word”, as recited in Applicants’ Claim 120.

As previously discussed, Wilensky describes that a character block may be stored in memory, and used as part of a test pattern if it meets the requirements of an issued high-level statement. However, Wilensky does not describe storing a forty-bit data sample including a unique ten-bit word.

Conclusion

It is respectfully submitted that each of the presently pending claims are in condition for allowance and notification to that effect is requested. The Examiner is invited to contact Applicant's representative at the below-listed telephone number if it is believed that prosecution of this application may be assisted thereby. Although certain arguments regarding patentability are set forth herein, there may be other arguments and reasons why the claimed invention is patentably distinct. Applicant reserves the right to raise these arguments in the future.

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Respectfully submitted,

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